

# PROACT CROSSTALK



An Environmental Resource sponsored by HQ Air Force Center for Environmental Excellence

## Status of Glycol-Free Aircraft Deicing Fluid

Prior to the 2003-2004 deicing season, a glycol-free deicing fluid, ADF-2, was incorporated for use in T.O. 42C-1-2, Anti-icing, Deicing, and Defrosting of Parked Aircraft. The product was fully qualified to the aircraft deicing fluid Standard, SAE AMS 1424. Extensive materials compatibility testing was undertaken to ensure the product would not damage aircraft components. However, when ADF-2 was heated and applied to aircraft, there was extensive residue remaining, which created safety of flight issues.

Subsequent investigations of the deicing fluid residue determined the product had thickened substantially during heated application. A review of the AMS 1424 test methods found no evaluation of impacts resulting from heated application. This had not been a problem with glycol-based deicing fluids. The Air Force Petroleum Office and other Air Force organizations have prepared reports on this issue, which will be presented at the SAE G-12 Sub-Committee on Deicing Fluids meeting in Frankfurt, Germany, 23-27 May 2004. These reports will be used to justify additional testing under AMS 1424 for evaluation of new types of deicing fluids.

As a result of the residue problem, ADF-2 will be removed from T.O. 42C-1-2 prior to the 2004-2005 deicing season. The revised Technical Order should be available by mid-June, 2004. For the 2004-2005 deicing season, only propylene glycol based aircraft deicing fluids are approved for Air Force use. There are currently several glycol-free aircraft deicing fluids under development. When these deicing fluids are validated by AMS 1424 requirements,

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pass material compatibility testing and demonstrate operational performance, they will be incorporated in T.O. 42C-1-2.

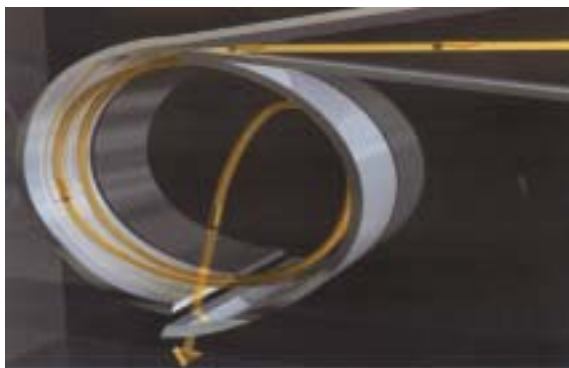
POC: Ben Curtis, Product Engineering Branch, AFTT, DSN: 785-8039

## P2 Initiatives

### Bullet Trap System for Small Arms Ranges

Savage Range Systems (SRS) has developed the Snail Trap range system in which fired bullets are deflected into a circular deceleration chamber. The chamber resembles the shell of a snail and bullets revolve in it until they lose energy and drop into a collection container. A bullet that is captured by the Snail Trap looks like it has been flattened by a hammer, but unlike traditional range systems, the bullet is still mainly intact. At most ranges, bullets hit a berm or smash-plate and disintegrate into many smaller pieces and tiny airborne particles.

“The Snail system provides a means of safely stopping bullets and it keeps the environmental contaminants under control,” said TSgt Frank D. Pickard, speaking of his experience with the Snail system at Whiteman AFB. “With its simple, unique design, the operating costs have been minimized. The simplicity also allows for longer life due to fewer moving parts and a drastic reduction in environmental impact.”



*Deceleration Chamber*

The evaluation of new environmental technologies and their application at military ranges is a specialty of Michael Warminsky, P.E., technical director for AMEC Earth & Environmental and Session Chair for Range Management at the 8<sup>th</sup> Annual Joint Services P2 & HWM Conference and Exhibition in San Antonio, TX. Mr. Warminsky says the Snail Trap has impressed him. “It is very much in accordance with the Air Force’s ETL (Engineering Technical Letter) which requires total containment on all new small arms ranges,” he said. “The combination of a no-blue-sky baffle system and the steel bullet trap significantly reduces all future remediation needs when compared to a traditional earth berm.”

Although Mr. Warminsky has used a cost-saving and effective “soil washing” process at some ranges to remove and recycle spent lead, he says prevention is always cheaper than the most innovative cure. And he says the Snail Trap offers “the lowest life-cycle operating cost of any range system available today.”

## CrossTalk

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Readers may submit articles or photographs for publication. Material will be edited, however, to conform to PROACT and Air Force guidelines.

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Because of the reduced contaminants in the air, the payback of an indoor Snail range in HVAC costs alone typically occurs in one year, according to SRS engineers.

Mr. Warminsky stated the Defender Model 855 Snail Systems trap, which currently is being installed at Kirtland AFB, can handle the M855 green tip military round, which has armor-piercing properties.



*Wet Range System at Whiteman AFB*

The Defender model features a 10-degree slope on the leading ramp, with a 36-inch diameter scroll for deceleration with minimum fragmentation. The design also incorporates bolt-in replaceable armor in the hot zone of the scroll, and a screw-auger central lead collection system.

The Snail Trap can be safely fired into with rifles and handguns at 'point blank' range without creating a ricochet hazard. Cross range firing, typical to tactical training scenarios, can also be safely undertaken.

Snail Traps are available as either wet or dry systems. With the wet system, a specially formulated biodegradable liquid lubricant circulates throughout the trap, coating the bullet and virtually eliminating airborne lead

generation at the trap. Dry ranges, however, often are desirable in outdoor applications, especially in regions that experience below freezing temperatures.

Snail system ranges can vary from a few yards to hundreds of feet in width. All are available with an automated spent projectile conveyor and reclamation system that provides a truly hands-free operation. For more information regarding this system contact SMSgt Mark Kramer at 757-764-2961 or TSgt Pickard (Whiteman AFB) at DSN 975-5124, or visit [www.snailtraps.com](http://www.snailtraps.com).

## Regulatory Alerts

### EPA Publishes Update to SNAP Rule

The Significant New Alternatives Policy (SNAP) program fulfills the EPA's statutory obligation under section 612 of the Clean Air Act to administer a program for evaluating alternatives to ODSs. Potential substitutes are assessed based on a number of environmental and health factors to determine the overall risk to human health and the environment posed by the use of substitutes. The EPA publishes a list of acceptable and unacceptable substitutes to which additions and deletions are made on a periodic basis. On 21 August 2003 the EPA expanded the list of acceptable substitutes for ozone depleting substances (ODS) under the SNAP program. The substitutes are for use in the following industrial sectors: refrigeration and air conditioning, solvent cleaning, foam blowing, fire suppression and explosion protection, and aerosols. A brief summary of the changes is provided below. For more detailed information on the recent additions visit <http://a257.g.akamaitech.net/7/257/2422/21aug20030800/edocket.access.gpo.gov/2003/03-21425.htm> or <http://www.epa.gov/ozone/snap/regs/index.html>.



### 1) Refrigeration.

a) R-407C is acceptable for use in new and retrofit equipment as a substitute for R-502 in retail food refrigeration, cold storage warehouses, food refrigeration, cold storage warehouses, commercial ice machines, refrigerated transport, ice skating rinks, water coolers, residential dehumidifiers, vending machines, industrial process air conditioning, reciprocating chillers, screw chillers, industrial process refrigeration, non-mechanical heat transfer systems, household refrigerators and freezers, and household and light commercial air conditioning.

b) ISCEON 89 is acceptable for use in new and retrofit equipment as a substitute for R-13B1 in very low temperature refrigeration.

c) RS-44 is acceptable for use in new and retrofit equipment for HCFC-22 in the following end uses: industrial process refrigeration, industrial process air conditioning, ice skating rinks, cold water warehouses, refrigerated transport, retail food refrigeration, commercial ice machines, household refrigerators and freezers, residential dehumidifiers, screw chillers, reciprocating chillers, centrifugal chillers, and household and light commercial air conditioning.

### 2) Solvents Cleaning.

a) Hydrofluoroether (HFE)-7000 is acceptable for use as a substitute for methyl chloroform and CFC-113 in the precision cleaning and electronics cleaning end uses.

### 3) Foam Blowing.

a) Ecomate™ is acceptable as a substitute for CFCs and HCFCs in the

following end-uses: Rigid polyurethane and polyisocyanurate laminated boardstock, Rigid polyurethane appliance, Rigid polyurethane slabstock and other foams, Rigid polyurethane commercial refrigeration and sandwich panels, and Polyurethane integral skin foam.

b) Hydrofluorocarbon (HFC)-245fa is an acceptable substitute for all HCFCs in: Rigid polyurethane and polyisocyanurate laminated boardstock; Rigid polyurethane appliance; Rigid polyurethane slabstock and other foams; Rigid polyurethane commercial refrigeration and sandwich panels; Phenolic insulation board and bunstock; Polyolefin; Polystyrene: extruded boardstock and billet; Polyurethane integral skin foam.

c) Blends of HFC-245fa and HCFC-22 are acceptable substitutes for blends of HCFC-141b and HCFC-22, where the HFC-245fa replaces the HCFC-141b in: Rigid polyurethane and polysocyanurate laminated boardstock, Rigid polyurethane appliance, Rigid polyurethane slabstock and other foams, Rigid polyurethane commercial refrigeration and sandwich panels, Phenolic insulation board and bunstock, Polyolefin, and Polyurethane integral skin foam.

### 4) Fire Suppression and Explosion Protection.

a) NAF S-125 is acceptable for use as a substitute for halon 1301 in the total flooding end use in both normally occupied and unoccupied spaces.

### 5) Aerosols.

a) HFE-7000 is acceptable for use as a substitute for methyl chloroform, CFC-113, and HCFC-141b in the aerosol solvent end use.

## New Tools and Guidance

### The Air Force Management and Equipment Evaluation Program (MEEP) Website

The Air Force MEEP evaluates commercially available products to determine if they are economical and effective in performing the Logistics Readiness Vehicle Management and Civil Engineering mission. MEEP also assesses vehicle management ideas, techniques, and systems to improve day-to-day operations. The MEEP program functions as the primary point of contact between the Air Force and private industry by providing Air Force personnel study-based performance and cost effectiveness product information prior to purchase.

MEEP projects are selected based on their potential to improve productivity, performance, efficiency, and environmental protection primarily within the Logistics Readiness Vehicle Management and Civil Engineering organizations. Air Force MEEP personnel attend industrial expositions and review trade publications, inter-service crossfeeds, and user submissions for new project ideas. Once a product has been approved for evaluation, the Air Force accepts the product under a no cost to government bailment agreement (contract). The Air Force MEEP is responsible for tracking the project. At the conclusion of the evaluation period, project data is analyzed to establish product performance. All evaluation information, positive or negative, is compiled into a detailed report. Based on report data and an Air Force MEEP review, a final report is processed with a use/non-use recommendation. If the product performed at a higher standard than similar products in the Air Force inventory, it could be selected to displace like items that are already stock listed or otherwise recommended for purchase. Reports are then analyzed by the appropriate program

management function to determine the feasibility of Air Force purchase.

The Air Force MEEP website provides DoD personnel comprehensive access to all product reports. The reports are catalogued into four functional project categories: Logistics Readiness Vehicle management, Civil Engineering, Environmental, and Other and Special Projects. Users may search and locate reports by project category or by using the master index. Online reports include evaluation material, product graphics, and convenient links to manufacturer websites. Users may also download a MEEP project form to request an evaluation. Visit the Air Force MEEP website at

<https://www.mil.langley.af.mil/associates/afmEEP/>.

## Conference Corner

### Solid Waste Exposition

The Solid Waste Association of North America (SWANA) is hosting the 41st annual International Solid Waste Exposition and DoD Solid Waste/Recycling Workshop, 14-16 October 2003, in St. Louis, Missouri. Recognized experts will conduct technical sessions surveying topics of vital interest to solid waste professionals, including collection and transfer, landfill, landfill gas, organics management, planning and management, recycling and waste reduction, special waste, and waste to energy. Over 250 exhibitors will feature the latest in equipment, systems, services, and technologies. Attendees are invited to participate in local facility tours to observe operations and experience first hand how other facilities approach and resolve technical and operational challenges. SWANA certified attendees can earn recertification hours by attending technical sessions, training courses, and facility tours. DoD and federal

employees will have an opportunity to attend several government specific events and training. To register by phone call 1-800-GO-SWANA (1-800-467-9262) or for more information visit <http://www.swana.org>.

### **Tri-Service Corrosion Conference**

The biennial Tri-Service Corrosion Conference will be held 17-21 November 2003 at the Flamingo Las Vegas Hotel in Las Vegas, Nevada. "Affordability & Readiness Enabling Transformation," will be the theme for the conference, where military personnel and contractor corrosion technologists will discuss significant corrosion control issues and topics, and share innovative ideas and solutions to DoD corrosion control problems. Attendance is open to all U.S. Government Employees, DoD Contractors and Grantees, and others with approval of a service representative. For more information on the conference, contact the event point of contact at (215) 610-7440, or by email [triservice@navmar.com](mailto:triservice@navmar.com). To register online visit <http://www.navmar.com/triservice/>.

## **Technical Inquiry Roundup**

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### **TI 24985 – Spill Reporting Requirements**

*By Gregory Hines*

A customer contacted PROACT requesting information regarding fuel spill reporting. The customer stated current fuel spill reporting policy requires all fuel spills to be reported to the Base Fire Department regardless of amount. Specifically, the customer wanted to know if there is any Air Force or Department of Defense guidance that specifies when a fuel spill must be reported to the Base Fire Department.

PROACT contacted Bruce A. Grabbe, Staff Emergency Management Specialist, HQ AFCEA/CEXR, DSN 523-6406, who stated

that in accordance with OSHA 1910.1200, 1910.38, and 1910.134 the user can clean up spills of materials for which they are trained as long as the spill is of an amount typically used in that work area. Notification to both Fire and Environmental organizations for concurrence and compliance is recommended. Mr. Grabbe also noted that spills of materials in quantities not normally occurring in the work area should be reported immediately to emergency response agencies.

PROACT reviewed the following portions of AFOSH Standard 91-38:

1. Attachment 3, "Safety Guide for Hydrocarbon Fuels," Section A3.3.12, states "Immediately clean up Class I fuel spills. For Class II and III fuel spills, immediately notify the fire protection organization (vapors from hydrocarbon fuels can form dangerous explosive mixtures with air)."
2. Chapter 2.3, "Fuel Spill Classifications" states, "fuel spill classification and emergency procedures are described in TO 00-25-172. Cleanup procedures will be established by the installation Environmental Coordinator."
3. Chapter 4.2.4 states, "Emergency shutdown will be accomplished according to applicable TO procedures. In case of a fuel spill, other than minor aircraft venting, the unit will not be evacuated until the area is washed down and declared safe by the installation fire department."
4. Chapter 3.3.4.2 states, "When fuel is spilled during servicing, operations will be stopped and equipment cleaned up according to local procedures prior to restarting fuel servicing operation. The fire protection branch will be contacted if a significant spill is experienced."

PROACT also reviewed Title 29 Code of Federal Regulation (CFR) 1910.120(a)(3,) which states, “Emergency response or responding to emergencies means a response effort by employees from outside the immediate release area or by other designated responders (i.e., mutual aid groups, local fire departments, etc.) to an occurrence which results, or is likely to result, in an uncontrolled release of a hazardous substance. Responses to incidental releases of hazardous substances where the substance can be absorbed, neutralized, or otherwise controlled at the time of release by employees in the immediate release area, or by maintenance personnel are not considered to be emergency responses within the scope of this standard. Responses to releases of hazardous substances where there is no potential safety or health hazard (i.e., fire, explosion, or chemical exposure) are not considered to be emergency responses.”

PROACT recommends you coordinate this response with your Base Fire Department to ensure compliance with any local or installation-specific reporting requirements.

### **TI 25008 – TRI Report for Chlorine Gas**

*By Carl Lehman*

A customer contacted PROACT concerning chlorine gas use in wastewater treatment and the associated calculations and reporting procedures for TRI Form R completion. The customer stated their installation uses over 10,000 pounds of chlorine to treat wastewater at the sewage treatment plant and requested responses to the following questions:

- 1) Is the injection of chlorine gas into wastewater effluent a “release?”
- 2) Is evaporation of water in chlorination tanks a “fugitive air release?”
- 3) Where can calculation instructions for chlorine in wastewater be found?
- 4) If the above are releases, where are they reported on the Form R?

PROACT found calculations for chlorine use in wastewater in Section 32, “Wastewater Treatment Plants,” pages 200-203 of the “Air Emissions Inventory Guidance Document for Stationary Sources at Air Force Installations,” May 1999, USAF IERA.

PROACT contacted Marc Edmonds, TRI Program Division, EPA, (202) 566-0758, who provided the following information:

1) “All of the chlorine injected into wastewater is considered “otherwise used” and should be counted toward this threshold. Quantities of chlorine that are injected into wastewater and are not converted to another chemical are reportable in either Section 5 (on-site releases) or Section 6 (off-site transfers) of the Form R, depending on the final disposition of the chemical. See the TRI Food Processors guidance document on the TRI web site for an example of calculating releases of chlorine in wastewater ([http://www.epa.gov/tri/guide\\_docs/](http://www.epa.gov/tri/guide_docs/)). Also, be aware that you may be producing chlorine compounds or other toxic chemicals that must be considered toward your manufacturing threshold.”

2. “Evaporation of toxic chemicals from a tank would be considered a fugitive release.”

3. “For this question refer to page 4-29 in the TRI Food Processors guidance document. This document provides examples for calculating thresholds, releases, and other waste management quantities of chlorine.”

4. “On-site releases are reported in Part II, Sections 5 and 8.1 of Form R. Off-site transfers are reported in Sections 6 and 8. Waste treatment methods for on-site waste streams are reported in Section 7 (no quantities are reported in Section 7). Releases to land on-site would be reported



in Sections 5.5 and 8.1 of the Form.” For more information on the Form R, please review the Toxic Release Inventory Reporting Forms and Instructions document on the TRI website at: <http://www.epa.gov/tri/report/>.

### **TI 25041 – Paint Product Substitution**

*By Pamela Jernigan*

A customer contacted PROACT requesting EPA-17 priority pollutant-free paint substitutes for the following products:

- 1) NSN 8010-00-290-6983, white, color number 17875,
- 2) NSN 8010-01-331-6119, blue, color number 15102, and
- 3) NSN 8010-00-141-2952, red, color number 11136.

The customer stated these products are used for general-purpose painting and added there are no technical orders or military specifications associated with their use.

PROACT contacted the Lighthouse for the Blind (LHB) Industries, (314) 423-4333, one of the main suppliers to these NSNs. We spoke with their technical representative who informed us they have EPA-17 priority pollutant-free spray paint products available under the following NSNs:

- 1) NSN 8010-01-331-6105, white, color number 17875,
- 2) NSN 8010-01-331-6119, blue, color number 15102, and
- 3) NSN 8010-01-331-6109, red, color number 11136.

Please note: The NSN for the blue paint substitute is the same NSN as the product you are currently using. According to LHB Industries, as of 1 June 2002, all LHB spray paints were reformulated to remove EPA-17 and hazardous air pollutant (HAP) chemicals in order to conform to California regulations on spray paints. If you order spray paints direct from LHB, you will receive the new EPA 17- and HAP-free spray paints. However, government supply warehouses and depots may still have the older spray paints on the shelf and can issue these until stocks are depleted.

### **In Our Customer's Own Words...**

“PROACT’s excellent staff has the contacts and knows the subject areas very well. I could have easily used 30 hours to get close to the direction PROACT provided. Keep up the great work and professional attitude. It is a privilege to have access to such a reliable source of information and support.”

Dr. Bridget Keegan  
Tyndall AFB

